Figure 1A

```
# Aligned_sequences: 2
# 1: Pcan057
# 2: Pcan057v1
# Matrix: EDNAFULL
# Gap_penalty: 100.0
# Extend_penalty: 0.05
#=======================================


Pcan057        1 aaacttcatcaaggtacntaaggttgtaaggttctcggggggtagcggct      50

Pcan057v1      1                                                           0

Pcan057       51 tgcacacctcttgaagggcttcarccgggcccctggctccttcaggctgg     100

Pcan057v1      1                                                           0

Pcan057      101 ctgccttnatccgcttatccaatgattggataacggatgaggggagtctg     150

Pcan057v1      1                                                           0

Pcan057      151 ggtgccaggtgctttgcccgcatggcccatttcagtcacgctgcagtcct     200

Pcan057v1      1                                                           0

Pcan057      201 gtcaggaaaaaatcagtgttattctcattctacatatgagaaaactgagg     250

Pcan057v1      1                                                           0

Pcan057      251 cttgcagatataagggccaaaagttacacagctagtgagtgatggggctg     300

Pcan057v1      1                                                           0

Pcan057      301 agtttcagactccacagtctcttaaccaccaagcagcatgcccagagtag     350

Pcan057v1      1                                                           0

Pcan057      351 aggtgagaaggaaggagagagctgcggtccacatgagcatctggacctag     400

Pcan057v1      1                                                           0

Pcan057      401 catggacaactcactcctccctggctctcgctttgttcttgttgcgggtg     450

Pcan057v1      1                                                           0

Pcan057      451 tggtggtggtgggactcaaagacggtaaagatagctttctctcctccctg     500

Pcan057v1      1                                                           0

Pcan057      501 gggaatctggggggttgtttaaaaggcctgctcctcttttagaaggcagga     550

Pcan057v1      1                                                           0
```

Figure 1B

```
Pcan057      551 gggccccaagggaagcagaaggtgacagaaggggaaagggtcctctgatc      600

Pcan057v1      1                                                            0

Pcan057      601 attgctc-------------------------------------------      607
                 |.|.|||
Pcan057v1      1 aattctcgagctcgtcgaccggtcgacgagctcgagggtcgacgagctcg      50

Pcan057      608 --------------------------------------------------      607

Pcan057v1     51 agggcgcgcgcccggcccccacccctcgcagcacccgcgccccgcgccc     100

Pcan057      608 --------------------------------------------------      607

Pcan057v1    101 tcccagccgggtccagccggagccatggggccggagccgcagtgagcacc     150

Pcan057      608 --------------------------------------------------      607

Pcan057v1    151 atggagctggcggccttgtgccgctggggggctcctcctcgccctcttgcc     200

Pcan057      608 --------------------------------------------------      607

Pcan057v1    201 ccccggagccgcgagcacccaagtgtgcaccggcacagacatgaagctgc     250

Pcan057      608 --------------------------------------------------      607

Pcan057v1    251 ggctccctgccagtcccgagacccacctggacatgctccgccacctctac     300

Pcan057      608 --------------------------------------------------      607

Pcan057v1    301 cagggctgccaggtggtgcagggaaacctggaactcacctacctgcccac     350

Pcan057      608 --------------------------------------------------      607

Pcan057v1    351 caatgccagcctgtccttcctgcaggatatccaggaggtgcagggctacg     400

Pcan057      608 --------------------------------------------------      607

Pcan057v1    401 tgctcatcgctcacaaccaagtgaggcaggtcccactgcagaggctgcgg     450

Pcan057      608 --------------------------------------------------      607

Pcan057v1    451 attgtgcgaggcacccagctctttgaggacaactatgccctggccgtgct     500

Pcan057      608 --------------------------------------------------      607

Pcan057v1    501 agacaatggagacccgctgaacaataccacccctgtcacaggggcctccc     550
```

Figure 1C

```
Pcan057    608 -------------------------------accccacagagatcttgaaa   627
                                             .||.||||||||||||||||||
Pcan057v1   51 caggaggcctgcgggagctgcagcttcgaagcctcacagagatcttgaaa   600

Pcan057    628 ggaggggtcttgatccagcggaaccccccagctctgctaccaggacacgat   677
                |||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  601 ggaggggtcttgatccagcggaaccccccagctctgctaccaggacacgat   650

Pcan057    678 tttgtggaaggacatcttccacaagaacaaccagctggctctcacactga   727
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  651 tttgtggaaggacatcttccacaagaacaaccagctggctctcacactga   700

Pcan057    728 tagacaccaaccgctctcgggcctgccacccctgttctccgatgtgtaag   777
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  701 tagacaccaaccgctctcgggcctgccacccctgttctccgatgtgtaag   750

Pcan057    778 ggctcccgctgctggggagagagttctgaggattgtcagagcctgacgcg   827
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  751 ggctcccgctgctggggagagagttctgaggattgtcagagcctgacgcg   800

Pcan057    828 cactgtctgtgccggtggctgtgcccgctgcaaggggccactgcccactg   877
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  801 cactgtctgtgccggtggctgtgcccgctgcaaggggccactgcccactg   850

Pcan057    878 actgctgccatgagcagtgtgctgccggctgcacgggccccaagcactct   927
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  851 actgctgccatgagcagtgtgctgccggctgcacgggccccaagcactct   900

Pcan057    928 gactgcctggcctgcctccacttcaaccacagtggcatctgtgagctgca   977
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  901 gactgcctggcctgcctccacttcaaccacagtggcatctgtgagctgca   950

Pcan057    978 ctgcccagccctggtcacctacaacacagacacgtttgagtccatgccca  1027
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  951 ctgcccagccctggtcacctacaacacagacacgtttgagtccatgccca  1000

Pcan057   1028 atcccgagggccggtatacattcggcgccagctgtgtgactgcctgtccc  1077
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1 1001 atcccgagggccggtatacattcggcgccagctgtgtgactgcctgtccc  1050

Pcan057   1078 tacaactacctttctacggacgtgggatcctgcaccctcgtctgccccct  1127
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1 1051 tacaactacctttctacggacgtgggatcctgcaccctcgtctgccccct  1100

Pcan057   1128 gcacaaccaagaggtgacagcagaggatggaacacagcggtgtgagaagt  1177
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1 1101 gcacaaccaagaggtgacagcagaggatggaacacagcggtgtgagaagt  1150

Pcan057   1178 gcagcaagccctgtgcccgagtgtgctatggtctgggcatggagcacttg  1227
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1 1151 gcagcaagccctgtgcccgagtgtgctatggtctgggcatggagcacttg  1200
```

Figure 1D

```
Pcan057     1228  cgagaggtgagggcagttaccagtgccaatatccaggagtttgctggctg  1277
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1201  cgagaggtgagggcagttaccagtgccaatatccaggagtttgctggctg  1250

Pcan057     1278  caagaagatctttgggagcctggcatttctgccggagagctttgatgggg  1327
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1251  caagaagatctttgggagcctggcatttctgccggagagctttgatgggg  1300

Pcan057     1328  acccagcctccaacactgccccgctccagccagagcagctccaagtgttt  1377
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1301  acccagcctccaacactgccccgctccagccagagcagctccaagtgttt  1350

Pcan057     1378  gagactctggaagagatcacaggttacctatacatctcagcatggccgga  1427
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1351  gagactctggaagagatcacaggttacctatacatctcagcatggccgga  1400

Pcan057     1428  cagcctgcctgacctcagcgtcttccagaacctgcaagtaatccggggac  1477
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1401  cagcctgcctgacctcagcgtcttccagaacctgcaagtaatccggggac  1450

Pcan057     1478  gaattctgcacaatggcgcctactcgctgaccctgcaagggctgggcatc  1527
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1451  gaattctgcacaatggcgcctactcgctgaccctgcaagggctgggcatc  1500

Pcan057     1528  agctggctggggctgcgctcactgagggaactgggcagtggactggccct  1577
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1501  agctggctggggctgcgctcactgagggaactgggcagtggactggccct  1550

Pcan057     1578  catccaccataacacccacctctgcttcgtgcacacggtgccctgggacc  1627
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1551  catccaccataacacccacctctgcttcgtgcacacggtgccctgggacc  1600

Pcan057     1628  agctctttcggaacccgcaccaagctctgctccacactgccaaccggcca  1677
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   1601  agctctttcggaacccgcaccaagctctgctccacactgccaaccggcca  1650

Pcan057     1678  gaggacgagtgt--------------------------------------  1689
                  |||||||||||||
Pcan057v1   1651  gaggacgagtgtggtaagacagggagcccagtgtgcgcactccccatctg  1700

Pcan057     1690  --------------------------------------------------  1689

Pcan057v1   1701  ccagcacacagcagtgcccaggggggccctggcagcagcgttcttggactt  1750

Pcan057     1690  --------------------------------------------------  1689

Pcan057v1   1751  gtgcagactgcccgtctctgtgcacccttcttgactcagcacagctctgg  1800

Pcan057     1690  --------------------------------------------------  1689
```

Figure 1E

```
Pcan057v1   1801  ctggcttggcctcttggcatggcttctctagctgggtcctacctgccttg   1850

Pcan057     1690  --------------------------------------------------   1689

Pcan057v1   1851  gcatccttccctcccctctgtttctgaaatctcagaactcttcctctcc   1900

Pcan057     1690  --------------------------------------------------   1689

Pcan057v1   1901  ctacatcggccccacctgtccccacccctccagcccacagccatgcccac   1950

Pcan057     1690  --------------------------------------------------   1689

Pcan057v1   1951  agccagttccctggttcacttggacctggggcctcccctaaaagtcccct   2000

Pcan057     1690  -------------------------gtgggcgagggcctggcctgccaccag   1716
                                           ||||||||||||||||||||||||||||
Pcan057v1   2001  gcggtcccttcctcctcactgcagtgggcgagggcctggcctgccaccag   2050

Pcan057     1717  ctgtgcgcccgagggcactgctggggtccagggcccacccagtgtgtcaa   1766
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2051  ctgtgcgcccgagggcactgctggggtccagggcccacccagtgtgtcaa   2100

Pcan057     1767  ctgcagccagttccttcggggccaggagtgcgtggaggaatgccgagtac   1816
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2101  ctgcagccagttccttcggggccaggagtgcgtggaggaatgccgagtac   2150

Pcan057     1817  tgcaggggctccccagggagtatgtgaatgccaggcactgtttgccgtgc   1866
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2151  tgcaggggctccccagggagtatgtgaatgccaggcactgtttgccgtgc   2200

Pcan057     1867  caccctgagtgtcagccccagaatggctcagtgacctgttttggaccgga   1916
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2201  caccctgagtgtcagccccagaatggctcagtgacctgttttggaccgga   2250

Pcan057     1917  ggctgaccagtgtgtggcctgtgcccactataaggaccctcccttctgcg   1966
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2251  ggctgaccagtgtgtggcctgtgcccactataaggaccctcccttctgcg   2300

Pcan057     1967  tggcccgctgccccagcggtgtgaaacctgacctctcctacatgcccatc   2016
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2301  tggcccgctgccccagcggtgtgaaacctgacctctcctacatgcccatc   2350

Pcan057     2017  tggaagtttccagatgaggagggcgcatgccagccttgccccatcaactg   2066
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2351  tggaagtttccagatgaggagggcgcatgccagccttgccccatcaactg   2400

Pcan057     2067  cacccactcctgtgtggacctggatgacaagggctgccccgccgagcaga   2116
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   2401  cacccactcctgtgtggacctggatgacaagggctgccccgccgagcaga   2450
```

Figure 1F

```
Pcan057    2117  gagccagccctctgacgtccatcatctctgcggtggttggcattctgctg    2166
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2451  gagccagccctctgacgtccatcatctctgcggtggttggcattctgctg    2500

Pcan057    2167  gtcgtggtcttggggggtggtctttgggatcctcatcaagcgacggcagca   2216
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2501  gtcgtggtcttggggggtggtctttgggatcctcatcaagcgacggcagca   2550

Pcan057    2217  gaagatccggaagtacacgatgcggagactgctgcaggaaacggagctgg    2266
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2551  gaagatccggaagtacacgatgcggagactgctgcaggaaacggagctgg    2600

Pcan057    2267  tggagccgctgacacctagcggagcgatgcccaaccaggcgcagatgcgg    2316
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2601  tggagccgctgacacctagcggagcgatgcccaaccaggcgcagatgcgg    2650

Pcan057    2317  atcctgaaagagacggagctgaggaaggtgaaggtgcttggatctggcgc    2366
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2651  atcctgaaagagacggagctgaggaaggtgaaggtgcttggatctggcgc    2700

Pcan057    2367  ttttggcacagtctacaagggcatctggatccctgatggggagaatgtga    2416
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2701  ttttggcacagtctacaagggcatctggatccctgatggggagaatgtga    2750

Pcan057    2417  aaattccagtggccatcaaagtgttgagggaaaacacatcccccaaagcc    2466
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2751  aaattccagtggccatcaaagtgttgagggaaaacacatcccccaaagcc    2800

Pcan057    2467  aacaaagaaatcttagacgaagcatacgtgatggctggtgtgggctcccc    2516
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2801  aacaaagaaatcttagacgaagcatacgtgatggctggtgtgggctcccc    2850

Pcan057    2517  atatgtctcccgccttctgggcatctgcctgacatccacggtgcagctgg    2566
                 |||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2851  atatgtctcccgccttctgggcatctgcctgacatccacggtgcagctgg    2900

Pcan057    2567  tgacacagcttatgccctatggctgcctcttagaccatgtccgggaaaac    2616
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  2901  tgacacagcttatgccctatggctgcctcttagaccatgtccgggaaaac    2950

Pcan057    2617  cgcggacgcctgggctcccaggacctgctgaactggtgtatgcagattgc    2666
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v   2951  cgcggacgcctgggctcccaggacctgctgaactggtgtatgcagattgc    3000

Pcan057    2667  caaggggatgagctacctggaggatgtgcggctcgtacacagggacttgg    2716
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1  3001  caaggggatgagctacctggaggatgtgcggctcgtacacagggacttgg    3050
```

Figure 1G

```
Pcan057      2717 ccgctcggaacgtgctggtcaagagtcccaaccatgtcaaaattacagac   2766
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3051 ccgctcggaacgtgctggtcaagagtcccaaccatgtcaaaattacagac   3100

Pcan057      2767 ttcgggctggctcggctgctggacattgacgagacagagtaccatgcaga   2816
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3101 ttcgggctggctcggctgctggacattgacgagacagagtaccatgcaga   3150

Pcan057      2817 tggggggcaaggtgcccatcaagtggatggcgctggagtccattctccgcc   2866
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3151 tggggggcaaggtgcccatcaagtggatggcgctggagtccattctccgcc   3200

Pcan057      2867 ggcggttcacccaccagagtgatgtgtggagttatggtgtgactgtgtgg   2916
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3201 ggcggttcacccaccagagtgatgtgtggagttatggtgtgactgtgtgg   3250

Pcan057      2917 gagctgatgacttttggggccaaaccttacgatgggatcccagcccggga   2966
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3251 gagctgatgacttttggggccaaaccttacgatgggatcccagcccggga   3300

Pcan057      2967 gatccctgacctgctggaaaaggggggagcggctgccccagccccccatct   3016
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3301 gatccctgacctgctggaaaaggggggagcggctgccccagccccccatct   3350

Pcan057      3017 gcaccattgatgtctacatgatcatggtcaaatgttggatgattgactct   3066
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3351 gcaccattgatgtctacatgatcatggtcaaatgttggatgattgactct   3400

Pcan057      3067 gaatgtcggccaagattccgggagttggtgtctgaattctcccgcatggc   3116
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3401 gaatgtcggccaagattccgggagttggtgtctgaattctcccgcatggc   3450

Pcan057      3117 cagggacccccagcgctttgtggtcatccagaatgaggacttgggcccag   3166
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3451 cagggacccccagcgctttgtggtcatccagaatgaggacttgggcccag   3500

Pcan057      3167 ccagtcccttggacagcaccttctaccgctcactgctggaggacgatgac   3216
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3501 ccagtcccttggacagcaccttctaccgctcactgctggaggacgatgac   3550

Pcan057      3217 atggggggacctggtggatgctgaggagtatctggtaccccagcagggctt   3266
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3551 atggggggacctggtggatgctgaggagtatctggtaccccagcagggctt   3600

Pcan057      3267 cttctgtccagaccctgccccgggcgctggggggcatggtccaccacaggc   3316
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3601 cttctgtccagaccctgccccgggcgctggggggcatggtccaccacaggc   3650

Pcan057      3317 accgcagctcatctaccaggagtggcggtggggacctgacactagggctg   3366
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3651 accgcagctcatctaccaggagtggcggtggggacctgacactagggctg   3700
```

Figure 1H

```
Pcan057      3367  gagccctctgaagaggaggccccaggtctccactggcaccctccgaagg      3416
                   |||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3701  gagccctctgaagaggaggccccaggtctccactggcaccctccgaagg      3750


Pcan057      3417  ggctggctccgatgtatttgatggtgacctgggaatgggggcagccaagg      3466
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3751  ggctggctccgatgtatttgatggtgacctgggaatgggggcagccaagg      3800


Pcan057      3467  ggctgcaaagcctccccacacatgaccccagccctctacagcggtacagt      3516
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3801  ggctgcaaagcctccccacacatgaccccagccctctacagcggtacagt      3850


Pcan057      3517  gaggaccccacagtacccctgccctctgagactgatggctacgttgcccc      3566
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3851  gaggaccccacagtacccctgccctctgagactgatggctacgttgcccc      3900


Pcan057      3567  cctgacctgcagcccccagcctgaatatgtgaaccagccagatgttcggc      3616
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3901  cctgacctgcagcccccagcctgaatatgtgaaccagccagatgttcggc      3950


Pcan057      3617  cccagcccccttcgccccgagagggccctctgcctgctgcccgacctgct      3666
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    3951  cccagcccccttcgccccgagagggccctctgcctgctgcccgacctgct      4000


Pcan057      3667  ggtgccactctggaaagggccaagactctctccccagggaagaatggggt      3716
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    4001  ggtgccactctggaaagggccaagactctctccccagggaagaatggggt      4050


Pcan057      3717  cgtcaaagacgtttttgcctttggggggtgccgtggagaaccccgagtact      3766
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    4051  cgtcaaagacgtttttgcctttggggggtgccgtggagaaccccgagtact      4100


Pcan057      3767  tgacaccccagggaggagctgcccctcagccccaccctcctcctgccttc      3816
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    4101  tgacaccccagggaggagctgcccctcagccccaccctcctcctgccttc      4150


Pcan057      3817  agcccagccttcgacaacctctattactgggaccaggacccaccagagcg      3866
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    4151  agcccagccttcgacaacctctattactgggaccaggacccaccagagcg      4200


Pcan057      3867  gggggctccacccagcaccttcaaagggacacctacggcagagaacccag      3916
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    4201  gggggctccacccagcaccttcaaagggacacctacggcagagaacccag      4250


Pcan057      3917  agtacctgggtctggacgtgccagtgtgaaccagaaggccaagtccgcag      3966
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    4251  agtacctgggtctggacgtgccagtgtgaaccagaaggccaagtccgcag      4300


Pcan057      3967  aagccctgatgtgtcctcagggagcagggaaggcctgacttctgctggca      4016
                   ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1    4301  aagccctgatgtgtcctcagggagcagggaaggcctgacttctgctggca      4350
```

Figure 1I

```
Pcan057     4017  tcaagaggtgggagggccctccgaccacttccaggggaacctgccatgcc     4066
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4351  tcaagaggtgggagggccctccgaccacttccaggggaacctgccatgcc     4400


Pcan057     4067  aggaacctgtcctaaggaaccttccttcctgcttgagttcccagatggct     4116
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4401  aggaacctgtcctaaggaaccttccttcctgcttgagttcccagatggct     4450


Pcan057     4117  ggaaggggtccagcctcgttggaagaggaacagcactggggagtctttgt     4166
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4451  ggaaggggtccagcctcgttggaagaggaacagcactggggagtctttgt     4500


Pcan057     4167  ggattctgaggccctgcccaatgagactctagggtccagtggatgccaca     4216
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4501  ggattctgaggccctgcccaatgagactctagggtccagtggatgccaca     4550


Pcan057     4217  gcccagcttggccctttccttccagatcctgggtactgaaagccttaggg     4266
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4551  gcccagcttggccctttccttccagatcctgggtactgaaagccttaggg     4600


Pcan057     4267  aagctggcctgagaggggaagcggccctaagggagtgtctaagaacaaaa     4316
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4601  aagctggcctgagaggggaagcggccctaagggagtgtctaagaacaaaa     4650


Pcan057     4317  gcgacccattcagagactgtccctgaaacctagtactgccccccatgagg     4366
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4651  gcgacccattcagagactgtccctgaaacctagtactgcccccatgagg     4700


Pcan057     4367  aaggaacagcaatggtgtcagtatccaggctttgtacagagtgcttttct     4416
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4701  aaggaacagcaatggtgtcagtatccaggctttgtacagagtgcttttct     4750


Pcan057     4417  gtttagtttttactttttttgttttgttttttaaagatgaaataaagac     4466
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4751  gtttagttttttactttttttgttttgttttttaaagatgaaataaagac     4800


Pcan057     4467  ccaggggggagaatgggtgttgtatggggaggcaagtgtggggggtccttc     4516
                  ||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4801  ccaggggggagaatgggtgttgtatggggaggcaagtgtggggggtccttc     4850


Pcan057     4517  tccacacccactttgtccatttgcaaatatattttggaaaaca      4559
                  ||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1   4851  tccacacccactttgtccatttgcaaatatattttggaaaaca      4893
```

Figure 2A

```
# Aligned_sequences: 2
# 1: Pcan057.aa
# 2: Pcan057v1.aa
# Matrix: EBLOSUM62
# Gap_penalty: 100.0
# Extend_penalty: 0.01
#=========================================

Pcan057.aa       1                                                     0

Pcan057v1.aa     1 MELAALCRWGLLLALLPPGAASTQVCTGTDMKLRLPASPETHLDMLRHLY    50

Pcan057.aa       1                                                     0

Pcan057v1.aa    51 QGCQVVQGNLELTYLPTNASLSFLQDIQEVQGYVLIAHNQVRQVPLQRLR   100

Pcan057.aa       1                                    MGLSFRLHSLLTTKQ     15
                                                      .....:|.||
Pcan057v1.aa   101 IVRGTQLFEDNYALAVLDNGDPLNNTTPVTGASPGGLRELQLRSL-----   145

Pcan057.aa      16 HAQSRGEKEGESCGPHEHLDLAWTTHSSLALALFLLRVWWWWDSKTVKIA    65

Pcan057v1.aa   146 -------------------------------------------------   145

Pcan057.aa      66 FSPPWGIWGLFKRPAPLLEGRRAPREAEGDRRGKGPLIIAHPTEILKGGV   115
                                                              ||||||||
Pcan057v1.aa   146 ----------------------------------------TEILKGGV   153

Pcan057.aa     116 LIQRNPQLCYQDTILWKDIFHKNNQLALTLIDTNRSRACHPCSPMCKGSR   165
                   |||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   154 LIQRNPQLCYQDTILWKDIFHKNNQLALTLIDTNRSRACHPCSPMCKGSR   203

Pcan057.aa     166 CWGESSEDCQSLTRTVCAGGCARCKGPLPTDCCHEQCAAGCTGPKHSDCL   215
                   |||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   204 CWGESSEDCQSLTRTVCAGGCARCKGPLPTDCCHEQCAAGCTGPKHSDCL   253

Pcan057.aa     216 ACLHFNHSGICELHCPALVTYNTDTFESMPNPEGRYTFGASCVTACPYNY   265
                   |||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   254 ACLHFNHSGICELHCPALVTYNTDTFESMPNPEGRYTFGASCVTACPYNY   303

Pcan057.aa     266 LSTDVGSCTLVCPLHNQEVTAEDGTQRCEKCSKPCARVCYGLGMEHLREV   315
                   |||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   304 LSTDVGSCTLVCPLHNQEVTAEDGTQRCEKCSKPCARVCYGLGMEHLREV   353

Pcan057.aa     316 RAVTSANIQEFAGCKKIFGSLAFLPESFDGDPASNTAPLQPEQLQVFETL   365
                   |||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa   354 RAVTSANIQEFAGCKKIFGSLAFLPESFDGDPASNTAPLQPEQLQVFETL   403
```

Figure 2B

```
Pcan057.aa    366 EEITGYLYISAWPDSLPDLSVFQNLQVIRGRILHNGAYSLTLQGLGISWL    415
                  |||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa 404 EEITGYLYISAWPDSLPDLSVFQNLQVIRGRILHNGAYSLTLQGLGISWL    453

Pcan057.aa    416 GLRSLRELGSGLALIHHNTHLCFVHTVPWDQLFRNPHQALLHTANRPEDE    465
                  |||||||||||||||||||||||||||||||||||||||||||||||||||
Pcan057v1.aa 454 GLRSLRELGSGLALIHHNTHLCFVHTVPWDQLFRNPHQALLHTANRPEDE    503

Pcan057.aa    466 CVGEGLACHQLCARGHCWGPGPTQCVNCSQFLRGQECVEECRVLQGLPRE    515
                  |...|.....|....|...|....................|.....
Pcan057v1.aa 504 CGKTGSPVCALPICQHTAVPRGPWQQRSWTCADCPSLCTLLDSAQLWLAW    553

Pcan057.aa    516 YVNARHCLPCHPECQPQNGSVTCFGPEADQCVACAHYKDPPFCVARCPSG    565
                  .:.........:....|......
Pcan057v1.aa 554 PLGMASLAGSYLPWHPSLPLCF                               575

Pcan057.aa    566 VKPDLSYMPIWKFPDEEGACQPCPINCTHSCVDLDDKGCPAEQRASPLTS    615

Pcan057v1.aa 576                                                      575

Pcan057.aa    616 IISAVVGILLVVVLGVVFGILIKRRQQKIRKYTMRRLLQETELVEPLTPS    665

Pcan057v1.aa 576                                                      575

Pcan057.aa    666 GAMPNQAQMRILKETELRKVKVLGSGAFGTVYKGIWIPDGENVKIPVAIK    715

Pcan057v1.aa 576                                                      575

Pcan057.aa    716 VLRENTSPKANKEILDEAYVMAGVGSPYVSRLLGICLTSTVQLVTQLMPY    765

Pcan057v1.aa 576                                                      575

Pcan057.aa    766 GCLLDHVRENRGRLGSQDLLNWCMQIAKGMSYLEDVRLVHRDLAARNVLV    815

Pcan057v1.aa 576                                                      575

Pcan057.aa    816 KSPNHVKITDFGLARLLDIDETEYHADGGKVPIKWMALESILRRRFTHQS    865

Pcan057v1.aa 576                                                      575

Pcan057.aa    866 DVWSYGVTVWELMTFGAKPYDGIPAREIPDLLEKGERLPQPPICTIDVYM    915

Pcan057v1.aa 576                                                      575

Pcan057.aa    916 IMVKCWMIDSECRPRFRELVSEFSRMARDPQRFVVIQNEDLGPASPLDST    965

Pcan057v1.aa 576                                                      575

Pcan057.aa    966 FYRSLLEDDDMGDLVDAEEYLVPQQGFFCPDPAPGAGGMVHHRHRSSSTR   1015
```

Figure 2C

```
Pcan057v1.aa 576                                                              575

Pcan057.aa   1016 SGGGDLTLGLEPSEEEAPRSPLAPSEGAGSDVFDGDLGMGAAKGLQSLPT   1065

Pcan057v1.aa 576                                                              575

Pcan057.aa   1066 HDPSPLQRYSEDPTVPLPSETDGYVAPLTCSPQPEYVNQPDVRPQPPSPR   1115

Pcan057v1.aa 576                                                              575

Pcan057.aa   1116 EGPLPAARPAGATLERAKTLSPGKNGVVKDVFAFGGAVENPEYLTPQGGA   1165

Pcan057v1.aa 576                                                              575

Pcan057.aa   1166 APQPHPPPAFSPAFDNLYYWDQDPPERGAPPSTFKGTPTAENPEYLGLDV   1215

Pcan057v1.aa 576                                                              575

Pcan057.aa   1216 PV     1217

Pcan057v1.aa 576            575
```

Figure 3A

```
# Aligned_sequences: 2
# 1: Pro108
# 2: Pro177
# Matrix: EDNAFULL
# Gap_penalty: 100.0
# Extend_penalty: 0.01
#=========================================

Pro108         1                                              gcacga        6
                                                              ...|..
Pro177         1 gggagggataggacggggagacaaagaaaggggtgcggcagcactgccag        50

Pro108         7 gggaagagggtgatccgacccggggaaggtcgctgggcagggcgagttgg        56
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177        51 gggaagagggtgatccgacccggggaaggtcgctgggcagggcgagttgg       100

Pro108        57 gaaagcggcagccccgccgcccccgcagccccttctcctcctttctccc       106
                 |||||||||||||||||||||||||||||||||||||||||||||||||
Pro177       101 gaaagcggcagccccgccgcccccgcagccccttctcctcctttctccc       150

Pro108       107 acgtcctatctgcctctcgctggaggccaggccgtgcagcatcgaagaca       156
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177       151 acgtcctatctgcctctcgctggaggccaggccgtgcagcatcgaagaca       200

Pro108       157 ggaggaactggagcctcattggccggcccggggcgccggcctcgggctta       206
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177       201 ggaggaactggagcctcattggccggcccggggcgccggcctcgggctta       250

Pro108       207 aataggagctccgggctctggctgggacccgaccgctgccggccgcgctc       256
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177       251 aataggagctccgggctctggctgggacccgaccgctgccggccgcgctc       300

Pro108       257 ccgctgctcctgccgggtgatggaaaaccccagcccggccgccgccctgg       306
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177       301 ccgctgctcctgccgggtgatggaaaaccccagcccggccgccgccctgg       350

Pro108       307 gcaaggccctctgcgctctcctcctggccactctcggcgccgccggccag       356
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177       351 gcaaggccctctgcgctctcctcctggccactctcggcgccgccggccag       400

Pro108       357 cctcttgggggagagtccatctgttccgccagagccccggccaaatacag       406
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177       401 cctcttgggggagagtccatctgttccgccagagccccggccaaatacag       450

Pro108       407 catcaccttcacgggcaagtggagccagacggccttcccccaagcagtacc       456
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177       451 catcaccttcacgggcaagtggagccagacggccttcccccaagcagtacc       500

Pro108       457 ccctgttccgcccccctgcgcagtggtcttcgctgctggggggccgcgcat       506
                 ||||||||||||||||||||||||||||||||||||||||||||||||||
```

Figure 3B

```
Pro177     501  ccctgttccgccccctgcgcagtggtcttcgctgctgggggccgcgcat    550

Pro108     507  agctccgactacagcatgtggaggaagaaccagtacgtcagtaacgggct    556
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     551  agctccgactacagcatgtggaggaagaaccagtacgtcagtaacgggct    600

Pro108     557  gcgcgactttgcggagcgcggcgaggcctgggcgctgatgaaggagatcg    606
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     601  gcgcgactttgcggagcgcggcgaggcctgggcgctgatgaaggagatcg    650

Pro108     607  aggcggcggggggaggcgctgcagagcgtgcacgcggtgttttcggcgccc    656
                |||||||||||||||||||||||||||||||||||||| .||||||||||||
Pro177     651  aggcggcgggggaggcgctgcagagcgtgcacgaggtgttttcggcgccc    700

Pro108     657  gccgtccccagcggcaccgggcagacgtcggcggagctggaggtgcagcg    706
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     701  gccgtccccagcggcaccgggcagacgtcggcggagctggaggtgcagcg    750

Pro108     707  caggcactcgctggtctcgtttgtggtgcgcatcgtgcccagccccgact    756
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     751  caggcactcgctggtctcgtttgtggtgcgcatcgtgcccagccccgact    800

Pro108     757  ggttcgtgggcgtggacagcctggacctgtgcgacggggaccgttggcgg    806
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     801  ggttcgtgggcgtggacagcctggacctgtgcgacggggaccgttggcgg    850

Pro108     807  gaacaggcggcgctggacctgtacccctacgacgccgggacggacagcgg    856
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     851  gaacaggcggcgctggacctgtacccctacgacgccgggacggacagcgg    900

Pro108     857  cttcaccttctcctcccccaacttcgccaccatcccgcaggacacggtga    906
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     901  cttcaccttctcctcccccaacttcgccaccatcccgcaggacacggtga    950

Pro108     907  ccgagataacgtcctcctctcccagccacccggccaactccttctactac    956
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177     951  ccgagataacgtcctcctctcccagccacccggccaactccttctactac    1000

Pro108     957  ccgcggctgaaggccctgcctcccatcgccagggtgacactggtgcggct    1006
                |||||||||||||||||||||||||||||||||||||||||| .||||||
Pro177    1001  ccgcggctgaaggccctgcctcccatcgccagggtgacactgctgcggct    1050

Pro108    1007  gcgacagagccccagggccttcatccctcccgccccagtcctgcccagca    1056
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    1051  gcgacagagccccagggccttcatccctcccgccccagtcctgcccagca    1100

Pro108    1057  gggacaatgagattgtagacagcgcct--------------------    1083
                ||||||||||||||||||||||||||||
Pro177    1101  gggacaatgagattgtagacagcgcctcaggtaacggacatacaggtcac    1150
```

Figure 3C

```
Pro108    1084  ----------------------------------------------------    1083

Pro177    1151  atgggacacacagcagccccgaaccctgccacagggcgaccaccaaaccc    1200

Pro108    1084  ----------------------------------------------------    1083

Pro177    1201  gaacctaaggctctgagaaattccaagtagggattcgtagtgcgtactgc    1250

Pro108    1084  ----------------------------------------------------    1083

Pro177    1251  aagatggtgcctagaagatttaggattctgttgattcacacactgaagat    1300

Pro108    1084  ----------------------------------------------------    1083

Pro177    1301  gtgactcttgcacattatttgcagttgaaagcatcttacagggccacagc    1350

Pro108    1084  ----------------------------------------------------    1083

Pro177    1351  ccagaggaaagaatgaaaggaggctccagacagtacctgagagactctgt    1400

Pro108    1084  ----------------------------------------------------    1083

Pro177    1401  cctgtcagacacgcacccacaggtgacctgtgtgtcacagctgacaagga    1450

Pro108    1084  ----------------------------------------------------    1083

Pro177    1451  agcttgctaggatggccctgtgtggccaccgggtgacagctatgctgcag    1500

Pro108    1084  ----------------------------------------------------    1083

Pro177    1501  ggcacctgtggggggtctcgggacccagccaccacacagctcggggctctg    1550

Pro108    1084  ----------------------------------------------------    1083

Pro177    1551  ctcacaggcgccttggcctggggcggggcaggtgctgatgagcattctcc    1600

Pro108    1084  ----------------------------------------------------    1083

Pro177    1601  tagctcttccaggcacctgctggacagggcaggctgggaacgctggggcc    1650

Pro108    1084  ----------------------------------------------------    1083

Pro177    1651  gagtggcagttccctccctactcagctgggtggcagccactggcctcacg    1700

Pro108    1084  ----------------------------------------------------    1083

Pro177    1701  gagcgcctgtggtctggagcgcattgctgggtcgtgggtcagggcctgtt    1750

Pro108    1084  ----------------------------------------------------    1083
```

Figure 3D

```
Pro177    1751  ggctctgggtctctgggtctcacctgatatgggtgtgggacagtcagtgt  1800

Pro108    1084  --------------------------------------------------  1083

Pro177    1801  aggccccagacaacagcggacttcagactttcccgaggaggaactggagc  1850

Pro108    1084  --------------------------------------------------  1083

Pro177    1851  ccaccaacctggccatgggccccgtcgtcctccaccctccatgttgctgg  1900

Pro108    1084  --------------------------------------------------  1083

Pro177    1901  ctggagttgaggcaggtacggggccgccccacacctgccccccaagccat  1950

Pro108    1084  --------------------------------------------------  1083

Pro177    1951  gtggtagggacagatgtcgtcttgaggagcagcagtaattacaagcttac  2000

Pro108    1084  --------------------------------------------------  1083

Pro177    2001  tgtcagccgtccctggaagcaagggccaggtcaggtcagacaggaggccg  2050

Pro108    1084  --------------------------------------------------  1083

Pro177    2051  cctggctggcgggaaccactccccagacagagactgtgcccagtcctggg  2100

Pro108    1084  --------------------------------------------------  1083

Pro177    2101  tccctcctcatttgggatgaactgggcctccctgtgccagcctcggtgct  2150

Pro108    1084  --------------------------------------------------  1083

Pro177    2151  gccctgcccagtgcaggcttgggctcctcactcatttgtccacgcggat  2200

Pro108    1084  --------------------------------------------------  1083

Pro177    2201  gccccattccaagcagatgtccccgagccacttacccaacaggcagacgt  2250

Pro108    1084  --------------------------------------------------  1083

Pro177    2251  gccagcactgttcgtggtgtgcaactggtctggcgggaagagcccctcgt  2300

Pro108    1084  --------------------------------------------------  1083

Pro177    2301  gggcagagggtccagagaggtgcggtttgccccacatttgggggcactgg  2350

Pro108    1084  --------------------------------------------------  1083

Pro177    2351  gccacagtgggcaggggagcacgtggccagtgccctgggtctgccacgat  2400
```

Figure 3E

```
Pro108   1084  ------------------------------------------------------  1083

Pro177   2401  gtgggagttccaccaccacagggacttgagcggcagctccggctcttacg  2450

Pro108   1084  ------------------------------------------------------  1083

Pro177   2451  tagaaacgcgcaactccagtccctaggttgtgtccgaggttgctatggtg  2500

Pro108   1084  ------------------------------------------------------  1083

Pro177   2501  ccatcccatcttgccgctcactctgcgactgtgcggagaaacgcaagtgc  2550

Pro108   1084  ------------------------------------------------------  1083

Pro177   2551  ccccgaagggtgggcgtggcctctgatgaatgcacacgttggtgggaggt  2600

Pro108   1084  ------------------------------------------------------  1083

Pro177   2601  ggcttccgtttgtacgaagcgcctcttcacgcgagcgttcacctcggtct  2650

Pro108   1084  --------------cagttccagaaacgccgctggactgcgaggtctcc  1118
                              ||||||||||||||||||||||||||||||||||||
Pro177   2651  cccctttgcttggtccagttccagaaacgccgctggactgcgaggtctcc  2700

Pro108   1119  ctgtggtcgtcctggggactgtgcggaggccactgtgggaggctcgggac  1168
                |||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   2701  ctgtggtcgtcctggggactgtgcggaggccactgtgggaggctcgggac  2750

Pro108   1169  caagagcaggactcgctacgtccgggtccagcccgccaacaacgggagcc  1218
                |||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   2751  caagagcaggactcgctacgtccgggtccagcccgccaacaacgggagcc  2800

Pro108   1219  cctgccccgagctcgaagaagaggctgagtgcgtccctgataactgcgtc  1268
                |||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   2801  cctgccccgagctcgaagaagaggctgagtgcgtccctgataactgcgtc  2850

Pro108   1269  taagaccagagccccgcagcccctgggg-cccccggagccatggggtgtc  1317
                ||||||||||||||||||||||||||||| ||||||||||||||||||||
Pro177   2851  taagaccagagccccgcagcccctggggcccccccggagccatggggtgtc  2900

Pro108   1318  gggggctcctgtgcaggctcatgctgcaggcggccga-ggcacagggggt  1366
                ||||||||||||||||||||||||||||||||||||| |||||||||||||
Pro177   2901  gggggctcctgtgcaggctcatgctgcaggcggccgagggcacagggggt  2950

Pro108   1367  ttcgcgctgctcctgaccgcggtgaggccgcgccgaccatctctgcactg  1416
                ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177   2951  ttcgcgctgctcctgaccgcggtgaggccgcgccgaccatctctgcactg  3000
```

Figure 3F

```
Pro108    1417 aagggccctctggtggccggcacgggcattgggaaacagcctcctccttt   1466
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3001 aagggccctctggtggccggcacgggcattgggaaacagcctcctccttt   3050

Pro108    1467 cccaaccttgcttcttaggggcccccgtgtcccgtctgctctcagcctcc   1516
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3051 cccaaccttgcttcttaggggcccccgtgtcccgtctgctctcagcctcc   3100

Pro108    1517 tcctcctgcaggataaagtcatccccaaggctccagctactctaaattat   1566
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3101 tcctcctgcaggataaagtcatccccaaggctccagctactctaaattat   3150

Pro108    1567 ggtctccttataagttattgctgctccaggagattgtccttcatcgtcca   1616
               |||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3151 -gtctccttataagttattgctgctccaggagattgtccttcatcgtcca   3199

Pro108    1617 ggggcctggctcccacgtggttgcagatacctcagacctggtgctctagg   1666
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3200 ggggcctggctcccacgtggttgcagatacctcagacctggtgctctagg   3249

Pro108    1667 ctgtgctgagcccactctcccgagggcgcatccaagcgggggccacttga   1716
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3250 ctgtgctgagcccactctcccgagggcgcatccaagcgggggccacttga   3299

Pro108    1717 gaagtgaataaatggggcggtttcggaagcgtcagtgtttccatgttatg   1766
               ||||||||||||||||||||||||||||||||||||||||||||||||||
Pro177    3300 gaagtgaataaatggggcggtttcggaagcgtcagtgtttccatgttatg   3349

Pro108    1767 gatctctctgcgtttgaataaagactatctctgttgctcac        1807
               |||||||||||||||||||||||||||||||||||||||||.
Pro177    3350 gatctctctgcgtttgaataaagactatctctgttgctcaaaaa    3393
```

Figure 4

```
Aligned_sequences: 2
# 1: PRO108.aa
# 2: PRO177.aa
# Matrix: EBLOSUM62
# Gap_penalty: 100.0
# Extend_penalty: 0.01
#=======================================

PRO108.aa     1 MENPSPAAALGKALCALLLATLGAAGQPLGGESICSARAPAKYSITFTGK     50
                ||||||||||||||||||||||||||||||||||||||||||||||||||
PRO177.aa     1 MENPSPAAALGKALCALLLATLGAAGQPLGGESICSARAPAKYSITFTGK     50

PRO108.aa    51 WSQTAFPKQYPLFRPPAQWSSLLGAAHSSDYSMWRKNQYVSNGLRDFAER    100
                ||||||||||||||||||||||||||||||||||||||||||||||||||
PRO177.aa    51 WSQTAFPKQYPLFRPPAQWSSLLGAAHSSDYSMWRKNQYVSNGLRDFAER    100

PRO108.aa   101 GEAWALMKEIEAAGEALQSVHAVFSAPAVPSGTGQTSAELEVQRRHSLVS    150
                ||||||||||||||||||||||||.|||||||||||||||||||||||||
PRO177.aa   101 GEAWALMKEIEAAGEALQSVHEVFSAPAVPSGTGQTSAELEVQRRHSLVS    150

PRO108.aa   151 FVVRIVPSPDWFVGVDSLDLCDGDRWREQAALDLYPYDAGTDSGFTFSSP    200
                ||||||||||||||||||||||||||||||||||||||||||||||||||
PRO177.aa   151 FVVRIVPSPDWFVGVDSLDLCDGDRWREQAALDLYPYDAGTDSGFTFSSP    200

PRO108.aa   201 NFATIPQDTVTEITSSSPSHPANSFYYPRLKALPPIARVTLVRLRQSPRA    250
                ||||||||||||||||||||||||||||||||||||||||||:|||||||
PRO177.aa   201 NFATIPQDTVTEITSSSPSHPANSFYYPRLKALPPIARVTLLRLRQSPRA    250

PRO108.aa   251 FIPPAPVLPSRDNEIVDSASVPETPLDCEVSLWSSWGLCGGHCGRLGTKS    300
                |||||||||||||||||||||||.................:...:.............|..
PRO177.aa   251 FIPPAPVLPSRDNEIVDSASGNGHTGHMGHTAAPNPATGRPPNPNLRL    298

PRO108.aa   301 RTRYVRVQPANNGSPCPELEEEAECVPDNCV       331

PRO177.aa   299                                      298
```

Figure 5A

```
# Aligned_sequences: 2
# 1: PRO108.aa
# 2: PRO177.orf
# Matrix: EBLOSUM62
# Gap_penalty: 100.0
# Extend_penalty: 0.01
#======================================
```

PRO108.aa	1		0
PRO177.orf	1	RCDSCTLFAVESILQGHSPEERMKGGSRQYLRDSVLSDTHPQVTCVSQLT	50
PRO108.aa	1		0
PRO177.orf	51	RKLARMALCGHRVTAMLQGTCGGLGTQPPHSSGLCSQAPWPGAGQVLMSI	100
PRO108.aa	1		0
PRO177.orf	101	LLALPGTCWTGQAGNAGAEWQFPPYSAGWQPLASRSACGLERIAGSWVRA	150
PRO108.aa	1		0
PRO177.orf	151	CWLWVSGSHLIWVWDSQCRPQTTADFRLSRGGTGAHQPGHGPRRPPPSML	200
PRO108.aa	1		0
PRO177.orf	201	LAGVEAGTGPPHTCPPSHVVGTDVVLRSSSNYKLTVSRPWKQGPGQVRQE	250
PRO108.aa	1		0
PRO177.orf	251	AAWLAGTTPQTETVPSPGSLLIWDELGLPVPASVLPLPSAGLGSSLICPR	300
PRO108.aa	1		0
PRO177.orf	301	GCPIPSRCPRATYPTGRRASTVRGVQLVWREEPLVGRGSREVRFAPHLGA	350
PRO108.aa	1		0
PRO177.orf	351	LGHSGQGSTWPVPWVCHDVGVPPPQGLERQLRLLRRNAQLQSLGCVRGCY	400

```
PRO108.aa     1                                              MEN     3
                                                           ..:
PRO177.orf  401 GAIPSCRSLCDCAEKRKCPRRVGVASDECTRWWEVASVCTKRLFTRAFTS   450

PRO108.aa     4 PSPAAALGKALCALLLATLGAAGQPLGGESICSARAPAKYSITFTGKWSQ    53
                  .||..
PRO177.orf  451 VSPLL---------------------------------------------   455

PRO108.aa    54 TAFPKQYPLFRPPAQWSSLLGAAHSSDYSMWRKNQYVSNGLRDFAERGEA   103
```

Figure 5B

```
PRO177.orf 456 -------------------------------------------------- 455

PRO108.aa  104 WALMKEIEAAGEALQSVHAVFSAPAVPSGTGQTSAELEVQRRHSLVSFVV  153

PRO177.orf 456 -------------------------------------------------- 455

PRO108.aa  154 RIVPSPDWFVGVDSLDLCDGDRWREQAALDLYPYDAGTDSGFTFSSPNFA  203

PRO177.orf 456 -------------------------------------------------- 455

PRO108.aa  204 TIPQDTVTEITSSSPSHPANSFYYPRLKALPPIARVTLVRLRQSPRAFIP  253

PRO177.orf 456 -------------------------------------------------- 455

PRO108.aa  254 PAPVLPSRDNEIVDSASVPETPLDCEVSLWSSWGLCGGHCGRLGTKSRTR  303
                                 ..|||||||||||||||||||||||||||||||||
PRO177.orf 456 --------------GPVPETPLDCEVSLWSSWGLCGGHCGRLGTKSRTR  490

PRO108.aa  304 YVRVQPANNGSPCPELEEEAECVPDNCV       331
                 |||||||||||||||||||||||||||
PRO177.orf 491 YVRVQPANNGSPCPELEEEAECVPDNCV       518
```